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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Brandon C. Collings

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EXAMINER

SINGH, DALZID E

ART UNIT

PAPER NUMBER

2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/008,507

Applicant(s)

COLLINGS ET AL.

Examiner

Dalzip Singh

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25, 29 and 32-35 is/are allowed.
- 6) ☒ Claim(s) 1-10, 14, 23, 26-28, 30 and 31 is/are rejected.
- 7) ☒ Claim(s) 11-13, 15-22 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "connection elements..." as recited in claim 26 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 26-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 26 recites, "connection elements that optically connect the add-out port of said first module to the add-in port of said second module, and the drop out port of said second module is optically connected to the drop-in of said first module." There is no structure or circuit diagram provided to teach a person of ordinary skill in the art where or how the connection element provides such connection between the ports. Therefore, the specification fails to provide enabling disclosure for claim 26.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-8, 14, 23, 25, 30 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Medin et al (US Patent No. 6,542,660).

Regarding claim 1, Medin et al disclose optical communication system, as shown in Fig. 3, comprising:

a series connection of elements E_i , $i=1,2, \dots N$, (OADM coupled to path 200 are serially connected) and where N is greater than 1, forming a first optical path, where each of said elements E_i injects an optical signal of band Σ_i (add channels), and where Σ_i is disjoint from Σ_j for all $i \neq j$ (see col. 7, lines 12-35); and,

a series connection of elements F_i , $i=1,2, \dots N$, (OADM coupled to path 210 are serially connected) forming a second optical path, where each of said elements F_i extracts an optical signal of band Σ_i (drop channels).

a plurality of transmitters T_i , $i=1,2, \dots N$ (220T1 and 220T2), coupled to said elements E_i on a one to one basis; and

a plurality of a receivers R_i , $i=1,2, \dots N$ (220R1 and 220R2), coupled to said elements F_i on a one to one basis.

Regarding claim 2, as shown in Fig. 3, Medin et al show said first optical path and said second optical path are physically separate paths.

Regarding claim 3, Medin et al disclose that each of said bands, Σ_i , is a narrow band that carries a single channel of communication (see col. 9, lines 52-59).

Regarding claim 4, Medin et al disclose that each of said bands, Σ_i (Σ_{13} or Σ_{15}) is substantially a single wavelength (see col. 9, lines 52-59).

Regarding claim 5, Medin et al disclose that at least one of said elements E_k , that injects band Σ_k , carries a plurality of independent channels of communication (see col. 9, lines 52-59).

Regarding claim 6, Medin et al disclose that each of said bands, Σ_i , comprises a plurality of narrow bands centered about wavelengths Σ_j , $j=1, 2, \dots M$, where M is an integer greater than 1, and each of said narrow bands constitutes an information channel (see col. 9, lines 52-59).

Regarding claim 7, Medin et al disclose that the narrow bands are composed of essentially a single wavelength, where wavelength Σ_j is different from Σ_k for all $j \neq k$ (see col. 9, lines 52-59).

Regarding claim 8, Medin et al disclose that transmitters, T_k , includes an optical multiplexer that combines optical signals, each of said signals constituting one channel of communication, to form an optical signal of band Σ_k (in col. 9, lines 45-63, Medin et al disclose the use of wavelength division multiplexing (WDM) comprising multiple channels multiplexed together).

Regarding claim 14, as shown in Fig. 3, Medin et al show each element E_i has an input port and an output port, each element E_i , has its output port connected to input port of element E_{i+1} , the input port of element E_i , forms an add-in node input port, and the input port of element E_N forms an add-in node output port, and each element F_i has

an input port and an output port, each element F_i has its output port connected to input port of element F_{i-1} , the input port of element F_N forms a drop-out node input port, and the input port of element F_1 , forms a drop-out node output port (each element E and element F is connected to other elements E and elements F ; the signal received by the element coupled to the optical ring has an input port and output port).

Regarding claim 23, as shown in Fig. 3, Medin et al disclose optical communication comprising:

a first node in a first location (OADMs located on the top of the ring can be considered as a first node),

a second node in a second location that is remote from said first location (OADMs located on the bottom of the ring can be considered as a second node); and

a bi-directional optical connection between said first node and said second node (fiber pair (200 and 210), which connects the first and second nodes, can be considered as a bidirectional optical connection).

Regarding claim 30, as shown in Fig. 3, Medin et al show plurality of nodes interconnected to form a ring.

Regarding claim 31, Medin et al disclose optical communication system comprising of plurality of nodes, as shown in Fig. 3 comprising:

a first optical path (200) composed of a series connection of elements E_i , $i=1,2, \dots, N$ (OADM), where N is greater than 1, where each of said elements E_i injects an optical signal of band Σ_i (add channel), and where Σ_i is disjoint from Σ_j for all $i \neq j$,

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followed by a series connection of elements F_j , $i=1,2, \dots N$ (OADM), where each of said elements F_i extracts an optical signal of band Σ_j (drop channel) and where at least one Σ_i is equal to Σ_j ; and

a second optical path (210), disjoint from said first optical path, composed of a series connection of elements F_i , $i=1,2, \dots N$, followed by series connection of elements E_j , $i=1,2, \dots M$ (the OADM functions to add and/or drop optical channel; therefore one location may be selected to add optical channels and at another to drop optical channel);

a plurality of optical transmitters coupled to said elements on a one to one basis; and a plurality of optical receivers coupled to said elements on a one to one basis (as shown in Fig. 3, there are plurality of transmitters and receivers coupled to the elements).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medin et al (US Patent No. 6,542,660).

Regarding claim 9, as discussed above, Medin et al disclose multiplexer and differ from the claimed invention in that Medlin et al do not specifically disclose that the multiplexer is a multi-level multiplexer. However, it is well known that plurality of multiplexer can be couple together to form cascaded multiplexer, therefore, it would have been obvious to form a multi-level multiplexer by cascading the multiplexer in order to combine optical signal of different data rates.

Regarding claim 10, as shown in Fig. 3, Medin et al show that elements E_i and element F_i and transmitter/receiver are closely placed together and differ from the claimed invention in that Medin et al do not specifically disclose collection of elements that includes element E_i and element F_i , the transmitter T_i and receiver R_i are housed in the single equipment module. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to house the elements and transmitter and receiver in the same equipment module. One of ordinary skill in the art would have been motivated to do this in order to protect all elements using a single housing.

Allowable Subject Matter

8. Claims 25, 29 and 32-35 are allowed.
9. Claims 11-13, 15-22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed 15 November 2006 with respect to claims 1 and 31 have been fully considered but they are not persuasive.

On page 21 of the remark, applicant indicates that Medin et al does not teach or suggest the coupling of the injection element and the plurality of transmitters on a one to one basis and Medin et al does not teach or suggest the coupling of the extraction element and the plurality of receivers on a one to one basis. The claim recites, "a plurality of transmitters ... coupled to said elements on a one to one basis; and a plurality of receivers coupled to said elements on a one to one basis." The broadest interpretation of the claim suggests that a transmitter or a receiver is coupled to an element, wherein there is plurality of such elements in the network and therefore provides plurality of transmitters and receivers. As shown in Fig. 3, Medin et al shows plurality of elements (OADM) coupled in series on first and second ring. Each element is coupled to transmitters (220T1 or 220T2) and receivers (220R1 or 220R2). For example, transmitter (220T1) coupled to element (OADM) on the left side which is coupled to the outer ring (200) connected to elements (OADM) on the right side which is coupled to transmitter (220T1). Therefore, it is considered that plurality of transmitters is coupled to said elements on a one to one basis. Similar argument is made for claim 31.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DS
January 30, 2007

DALZID SINGH
PRIMARY EXAMINER

